

AMENDMENTS TO THE CLAIMS

This listing will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) An apparatus for treating highly corrosive agents, comprising:

a tube bundle heat exchanger, structured to carry out a heat exchange between two a first fluids one of which is highly corrosive and flowing inside of at least one tube bundle, and a second fluid flowing outside of said at least one tube bundle,

wherein said at least one tube bundle comprises at least one first tube of titanium or titanium alloy tube, coated with having a second tube of zirconium or zirconium alloy bonded to the titanium or titanium alloy tube metallurgically or through welding,

wherein one of first and second tubes is bonded inside the other of said first and second tubes and is in contact with said first highly corrosive fluid flowing inside said at least one tube bundle, and the other of said first and second tubes is in contact with at least said second fluid flowing outside said at least one tube bundle.

2. (Previously presented) The apparatus according to claim 1, wherein said at least one titanium or titanium alloy tube is coated on the inside by said zirconium or zirconium alloy tube.

3. (Currently Amended) The apparatus according to claim 1, wherein said at least one titanium or titanium alloy tube has a thickness between 1.0 and 10 millimeters [[mm]], and in that said zirconium or zirconium alloy coating tube has a thickness between 0.3 and 2.0 millimeters [[mm]].

4. (Previously presented) The apparatus according to claim 1, wherein said at least one titanium or titanium alloy tube is only partially coated with said zirconium or zirconium alloy tube.

5. (Currently Amended) The apparatus according to claim 4, wherein said zirconium or zirconium alloy tube coats solely an end portion of ~~said heat exchange~~ the at least one titanium or titanium alloy tube.

6. (Currently Amended) The apparatus according to claim 3, wherein said zirconium or zirconium alloy tube extends in said at least one titanium or titanium alloy tube starting from an entry end towards an opposite end thereof, for a portion between 5 and 30[%] percent.

7. (Cancelled)

8. (Previously presented) The apparatus according to claim 1, wherein said at least one titanium or titanium alloy tube and said zirconium or zirconium alloy coating tube are bonded together through hot-drawing.

9. (Previously presented) The apparatus according to claim 1, wherein said heat exchanger comprises respective upper and lower tube plates for supporting said tube bundle, said tube plates being made of titanium or titanium alloy, or being coated with a titanium or titanium alloy tube.

10. (Currently Amended) The apparatus according to claim 9, wherein said upper and lower tube plates are made of carbon or stainless steel, coated on the outside with a tube of 3-15 [[mm]] millimeters of titanium or titanium alloy.

11. (Currently Amended) [[An]] The apparatus according to claim 1, which wherein the apparatus is a stripper for the decomposition of ammonium carbamate in an urea production plant.

12. (Currently Amended) [[An]] The apparatus according to claim 1, which wherein the apparatus is a condenser for the condensation of ammonia and carbon dioxide into ammonium carbamate in an urea production plant.

13. (New) An apparatus for treating highly corrosive agents, comprising:
a tube bundle heat exchanger, structured to carry out a heat exchange between two fluids one of which is highly corrosive and flowing inside of at least one tube bundle,
wherein said at least one tube bundle comprises at least one titanium or titanium alloy tube, coated with a layer of zirconium or zirconium alloy bonded to the titanium or titanium alloy tube metallurgically or through welding,
wherein said zirconium or zirconium alloy layer extends inside said at least one titanium or titanium alloy tube starting from an entry end towards an opposite end thereof, for a portion between 10 and 20 percent of the length of the titanium or titanium alloy tube.